

## CURRICULUM VITAE

**Charles Samuel Cox, Jr.**

**Present Position:**

George and Cynthia Mitchell Distinguished Chair in Neurosciences, Professor of Pediatric Surgery, Pediatrics and Biomedical Engineering, The University of Texas Medical School at Houston  
Director of University of Texas Health Science Center Program in Pediatric Regenerative Medicine, Judith Hoffberger Cellular Therapeutics Laboratory and Evelyn Griffin Stem Cell Therapeutics Laboratory; Bentsen Stroke Center Investigator- Brown Foundation Institute for Molecular Medicine  
Co-Director, Texas Trauma Institute

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Department of Pediatric Surgery: <http://utsurg.uth.tmc.edu/pedisurgery/index.htm>

Translational Laboratories: <http://utsurg.uth.tmc.edu/pedisurgery/translational-labs/index.html>

**Undergraduate Education:**

1980-1984 University of Texas at Austin - BA

**Graduate Education:**

1984-1988 University of Texas Medical Branch at Galveston - MD

**Postgraduate Training:**

Internship in Surgery

1988-1989 University of Texas Health Science Center at Houston

Residency in Surgery

1989-1990 University of Texas Health Science Center at Houston

1992-1993 University of Texas Health Science Center at Houston

1993-1994 University of Texas Health Science Center at Houston

Fellowship

1990-1992 NIH Research Fellow in Trauma and Burns

Shriner's Burns Institute, University of Texas Medical Branch

1994-1996 Pediatric Surgery, University of Michigan

1996-1997 Surgical Critical Care, University of Texas-Houston

**Military:**

Captain, Medical Corps United States Army Reserve - 1990 to 1996

Major, Medical Corps United States Army Reserve - 1996 to 2002

Lieutenant Colonel, Medical Corps United States Army Reserve - 2002 to 2004

Awards: Meritorious Unit Citation; Joint Meritorious Unit Award; Army Service Ribbon; National Defense Service Medal with Bronze Star Device; Army Commendation Medal; Armed Forces Reserve Medal with M device, Bronze Hourglass, and numeral 2 device; Reserve Component Achievement Medal with 3 Oak Leaf Clusters; Global War on Terror Expeditionary Medal; Global War on Terror Medal; Afghanistan Campaign Medal; Expert-Pistol; Combat Medical Badge; Overseas Service Bar; 82<sup>nd</sup> Airborne Combat Patch- 2002-2003 – 909<sup>th</sup> Forward Surgical Team; 44<sup>th</sup> Medical Command; 82<sup>nd</sup> Airborne Division; FOB Salerno Afghanistan.

Other: Invited Panelist: HLS C2 Prioritization Workshop/USAMRMC-TATRC. 27 April 2003, Orlando, Florida. Gary P. Wratten Memorial Visiting Professor, 20 May 2003, San Antonio, Texas. Invited Panelist: 10<sup>th</sup> Annual Trauma Symposium – Brooke Army Medical Center, 10 August 2004, San Antonio, Texas. American Association for the Surgery of Trauma Honorary Combat Surgery Medal, 2004.

The Association of Military Surgeons-Texas Medical Center Chapter Faculty Advisor.

The University of Texas Center for Biosecurity and Public Health Preparedness- Associate Director, Hospital and Trauma Preparedness (2004-2007).

Invited panelist: Neural Restoration Workshop: Cognitive and Optical Military Systems, Sandia National Laboratories/DOE; 12 November 2009. Problem Based Learning Curriculum in Military Medicine (2012).

Civilian Liaison: BAMC/SAMC Pediatric Trauma/Critical Care Fellowship Rotation (2010-date)

**Academic Appointments:**

1995-1996 Instructor of Pediatric Surgery  
University of Michigan Medical School

1996-1997 Instructor of Pediatric Surgery  
University of Texas-Houston Medical School

1997-2001 Assistant Professor of Surgery and Pediatrics  
University of Texas-Houston Medical School

2001-2005 Associate Professor of Surgery and Pediatrics  
University of Texas-Houston Medical School

2005-Present Professor of Surgery and Pediatrics  
University of Texas-Houston Medical School

2008-2012 Adjoint Professor of Biomedical Engineering  
University of Texas-Austin, Cockrell School of Engineering

2009-Present Adjoint Professor of Nanomedicine and Biomedical Engineering  
University of Texas-Houston Medical School

**Hospital Appointments:**

Children's Memorial Hermann Hospital

LBJ/Ben Taub General Hospitals

M.D. Anderson Cancer Center

Texas Children's Hospital  
Texas Women's Hospital  
Memorial Hermann – Southwest, Memorial City, Katy & The Woodlands  
1996- 2011 Co-Director UT-HMS/Hermann Hospital ECMO Program  
1996-Present Director UT-HMS/Hermann Hospital Pediatric Trauma Program

**Licensure:**

Texas State Board of Medical Examiners: H 6136  
Texas DPS: L0086846; DEA: BC 4844634  
Michigan State Board of Medical Examiners: 4301063982  
Texas Medical Board- Expert Panelist: Surgery, Pediatric Surgery, Surgical Critical Care

**Board Certification:**

Diplomate, American Board of Surgery #40103, May 2, 1995  
Special Qualifications in Pediatric Surgery #755, April 20, 1998  
Added Qualifications in Surgical Critical Care #1581, October 24, 1997  
Recertification in Surgery 2003 #40103, July 1, 2015 (Exp)  
Recertification in Surgical Critical Care #1581, December 31, 2018 (Exp)  
Recertification in Pediatric Surgery #755, December 31, 2018 (Exp)  
Recertification in Surgery 2013 #40103, December 1, 2025  
Recertification in Surgical Critical Care #1581, December 31, 2022  
Recertification in Pediatric Surgery #755, December 31, 2027

**Other Certifications:**

Advanced Trauma Life Support – Provider and Instructor, July 20, 2019  
Basic Cardiac Life Support  
Pediatric Advanced Life Support

**Professional Organizations:**

American Surgical Association  
Society of University Surgeons  
American Pediatric Surgical Association  
American College of Surgeons  
American College of Surgeons South Texas Chapter  
American Association for the Surgery of Trauma  
Shock Society  
American Academy of Pediatrics  
American Physiological Society-Cardiovascular Section  
American Society for Artificial Internal Organs  
Association of Academic Surgery  
Extracorporeal Life Support Organization  
DeBakey Institute  
Society of Critical Care Medicine  
Microcirculatory Society  
Surgical Biology Club III  
Mission Connect  
Cord Blood Association

## **Honors and Awards:**

- 1984 Graduate, University of Texas Plan II Liberal Arts Honors Program
- 1986 Dean's List, University of Texas Medical Branch
- 1987 University of Texas Medical Branch at Galveston representative to American College of Surgeons Clinical Congress, Medical Student Program.
- 1990 Resident Award, American College of Surgeons - Committee on Trauma, South Texas Chapter Resident's Competition
- 1991 American Society of Artificial Internal Organs Traveling Fellowship Award
- 1992 Alpha Omega Alpha
- 1992 Resident Award, American College of Surgeons, South Texas Chapter Scientific Session
- 1993 Co-winner Carl A. Moyer Award for Burn Research (American Burn Association)
- 1994 George W. Waldron Surgical Award (Outstanding Chief Resident, University of Texas Health Science Center at Houston)
- 1997 Dean's Excellence Award, University of Texas Medical School-Houston
- 1998 Dean's Excellence Award, University of Texas Medical School-Houston
- 2000 Physician of the Year – Memorial Hermann Children's Hospital
- 2002 Charter Fellow, Michael E. DeBakey Institute for Comparative Cardiovascular Science and Biomedical Devices
- 2002 Faculty Advisor – The Association of Military Surgeons of the United States: Texas Medical Center Chapter
- 2003 Microcirculatory Award for Excellence in Lymphatic Research
- 2006 William Pokorny Surgical Science Lectureship
- 2007 Michael E. DeBakey Institute Master Lecturer in Cardiovascular Physiology
- 2007 Surgery Chief Resident Surgical Teaching Award, University of Texas Medical School-Houston
- 2010 Frank G. Moody Academic Surgeon Award, University of Texas Medical School-Houston
- 2013 Ralph E. Ligon Award (Formerly Surgery Chief Resident Surgical Teaching Award), University of Texas Medical School-Houston
- 2014 UT Health Resident Alumni Award: Moody Lectureship
- 2015 American College of Surgeons, South Texas Chapter, William Pokorny Memorial Lecture, Western Trauma Society Founders Lecture
- 2015 Robert D. Hart Endowed Lectureship Series – University of Illinois
- 2015 Jesse Ternberg Endowed Lecture – Washington University Medical School
- 2017 Harrington Scholar Finalist

## **Editorial Positions (40 manuscripts/year):**

### 1. Clinical

- Annals of Surgery - reviewer
- Clinical Science - reviewer
- Journal of Trauma – reviewer
- Intensive Care Medicine - reviewer
- Journal of Surgical Endoscopy - reviewer
- Surgery - reviewer
- Critical Care Medicine – reviewer
- ACS Surgical Forum (Pediatric Surgery) – reviewer (2007-Present)
- Journal of Pediatric Surgery – reviewer

2. Stem Cells/Tissue Engineering
  - Journal of Clinical Investigation
  - Stem Cells - reviewer
  - Stem Cells and Development – reviewer
  - Brain - reviewer
  - Cytotherapy – reviewer
  - Drug Discovery Today – reviewer
  - Recent Patents on CNS Drug Discovery – reviewer
  - Bentham Science Publishers – book reviewer
  - Tissue Engineering – reviewer
  - Analyst – reviewer
  - Brain Research – reviewer
  - World Journal of Stem Cells – Editorial Board
  - Rejuvenation Research – reviewer
  - Current Medicinal Chemistry – reviewer
  - Journal of Neuroinflammation– reviewer
  - Journal of Neurological Sciences – reviewer
  - Neurobiology of Disease – reviewer
  - Translational Stroke Research – reviewer
  - NMR Medicine – reviewer
  - Brain, Behavior & Immunity – reviewer
  - Biomed Research International – reviewer
  - Stroke – reviewer
  - Stem Cells International – reviewer
3. Medical Devices
  - Journal of Neurotrauma - reviewer
  - Journal of Thoracic and Cardiovascular Surgery – reviewer
  - ASAIO Journal – Section Editor: Gas Exchange/Pediatric Circulatory Support and Perfusion Sections (2009-2011); Editorial Novel (2011-2018)
4. Physiology
  - Brazilian Journal of Medical and Biological Sciences – reviewer
  - Journal of Applied Physiology – reviewer
  - BMC Gastroenterology - reviewer
5. Editorial Consultant
  - American Journal Experts
6. Springer Publishers
  - Book Proposal Reviewer

**Service on National Grant Review Panels, Study Sections, Committees:**

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|--------------|---|
| 1998-Present | State of Florida Emergency Medical Services Trauma Center Site Reviewer                           |
| 2000-Present | Reviewer, National Student Research Forum   |
| 2001-Present | State of Missouri Department of Health Trauma Center Site Reviewer                                |
| 2001-2007    | State of Pennsylvania Department of Health Trauma Center Site Reviewer                            |
| 2002-2002    | Canadian Institutes of Health Research: Cardiovascular Systems Study Section                      |
| 2002-2002    | US Civilian Research and Development Foundation Bilateral Grants Program-III Reviewer (ID #16331) |

2000-2003	Society of University Surgeons: Chairman, local arrangements for 2003 meeting
2003-2003	Medical Advisory Council: Congress of the United States House of Representatives; 25 <sup>th</sup> District, Texas
2003-Present	Southeast Texas Regional Advisory Council – Pediatric Trauma Subcommittee Chairman
2004-2004	Centers for Disease Control Injury Center: Measurement of Quality Outcomes Work Group
2004-Present	American College of Surgeons Southern Texas District #1 Committee on Applicants
2005-2008	Society of University Surgeons Membership Committee
2005-2006	Association of Academic Surgery: Fundamentals of Surgical Research Course Faculty
2005-2006	National Medical Research Council (Singapore): Sepsis Study Section
2005-2009	American Heart Association, Western Review Consortium - (Lung, Immunology, Surgery) Study Section
2006-2009	American Heart Association, Western States Affiliate - Research Advisory Committee
2006-2012	American College of Surgeons Committee on Trauma Subcommittees: <ul style="list-style-type: none"> <li>- Pediatric Trauma</li> <li>- Panelist Trauma Video Session</li> <li>- Publications</li> <li>- Reviewer: SSET Syllabus</li> <li>- Disaster Management</li> <li>- South Texas Chapter</li> </ul>
2007-2009	RAPTOR TRIAL: Data Safety Monitoring Board Member
2007-2010	Department of Veterans Affairs Joint Biomedical Laboratory Research and Development Scientific MERIT Review Board (Subcommittee for Surgery)
2008-2010	Chairman: Study Section - Department of Veterans Affairs Joint Biomedical Research A: Integrated Review Group; Office of Research and Development (Subcommittee for Surgery)
2007-Present	American Pediatric Surgical Association Committee on Trauma
2007-Present	American Institute of Biological Sciences (DOD/USAMRMC) Ad Hoc Grant/Program Reviewer
2007	National Institutes of Health - ZHD1 DSR-A (18) Special Emphasis Review Committee: “New Approaches for the Prevention and Treatment of NEC”
2007	National Institute on Disability and Rehabilitation Research (Department of Education): Traumatic Brain Injury Model Systems Centers Collaborative Research Projects
2008-Present	American College of Surgeons: Surgical Forum (Pediatric Surgery) - Reviewer/Judge
2008	Medical Monitor: Whole blood resuscitation trial (Gonzalez, E: PI)
2008	Czech Science Foundation: International Project Reviewer
2008	Department of Defense Deployment Related Medical Research Program: Psychological Health and Traumatic Brain injury – 4 Clinical Trial Award

– Scientific Review Panelist

2008 National Medical Research Council (Singapore): Surgery Study Section

2008 LeBonheur Children’s Hospital/University of Tennessee-Division of Pediatric Surgery – External Reviewer

2008 Sarah Jane Brain Foundation – Scientific Advisory Board

2009 Georgia Stem Cell Initiative: Conference Panelist: Intellectual property and scientific barriers to clinical trials using progenitor cells

2009 California Institute for Regenerative Medicine Grants Working Group

2009 Moderator Pediatric Surgical Forum

2009-2010 8<sup>th</sup> World Congress of Trauma, Shock Inflammation and Sepsis: Scientific Committee and Faculty – Stem Cells and Neurological Injury

2009 Department of Defense Deployment Related Medical Research Program: Traumatic Brain Injury: Scientific Review Panelist

2010 National Medical Research Council (Singapore): Biomedical Engineering Study Section

2010 Emergency Medical Services Commission Advisory Board: CHOLA Grant “Pediatric Emergency Logistics of Care Regionalization”

2010 Stem Cell Therapies as an Emerging Paradigm in Stroke-2. Panelist

2010 Data Safety Monitoring Board: A randomized clinical trial of pravastatin and atorvastatin in severe traumatic brain injury.

2010 Department of Veterans Affairs: Rehabilitation Research & Development Merit Review Board (2 Study Sections/Year)

2010 American Association for the Surgery of Trauma – Pediatric Trauma Surgery Ad Hoc Committee

2010 AATV International Grant Reviewer

2011 National Institutes of Health (NHLBI-PACT) Cellular Therapies for Pediatric Diseases Workshop: Panelist / Speaker

2012 CIRM: California Institute for Regenerative Medicine: Chairman: Early Translational Research Award Study Section; Disease Team Award Program; Research Leadership Award; Chairman: New Faculty Clinician Scientist Award; CIRM Strategic Partnership; Translational Award IV

2012 APSA Publications Committee

2012 BSRI/CIRM Workshop: Cellular Therapies in Trauma Critical Care – Organizing Committee and Lecturer

2012 Thrasher Research Fund Grant Reviewer

2013 CIRM: Translational Award IV; CIRM IOM/Grantee Network

2013 Expert Panel: Automated Critical Care Systems Office of Naval Research; PI: George Kramer, Ph.D.

2013 Government of Hong Kong Health/Medical Research Fund: Grant Reviewer (Annual Reviews)

2013 National Institutes of Health/NINDS: BDCN N58 Special Emphasis Panel; Sports Related TBI; SCI: Reviewer

2013 UMKC Trauma Research Center External Evaluation Committee

2013 Center for Advancement of Science in Space (CASIS)/NASA: Impact of microgravity on Fundamental Stem Cell Properties; Grant Reviewer

2014 Columbia University Specialized Research Center in Injury and Perioperative Sciences: External Advisory Committee

2014 Le Bonheur Children’s Hospital, Department of Pediatric Surgery; External Reviewer

2014 CIRM: Research Leadership Awards; Tools and Technologies Awards; Alpha Stem Cell Clinic Awards; Chairman: External Innovation Awards; Bridging Supplements/Early Translation Awards

2014 National Institutes of Health: Loan Repayment Program Special Emphasis Panel 2014/08 ZTR1 CI (01); Reviewer

2014 PSI Foundation; Ad hoc Grant Reviewer

2014 National Institute of Health – NINDS, NSD-K (G78) Special Emphasis Panel Study Section Ad Hoc Reviewer

2014 National Institutes of Health – NINDS, BINP Study Section (Brain injury and Neurovascular Pathologies) Ad Hoc Reviewer

2014 CIRM: Pre-Clinical Development Award – Grants Working Group Chairman

2015 CIRM 2.0 Grants Working Group/Study Chair

2015 National Institutes of Health – MODS Conference

2015 National Institutes of Health – NINDS, 2RGI BDCN-Y Study Section; Special Emphasis Panel – TBI

2016 National Institutes of Health – NINDS, BINP Study Section (Brain Injury and Neuroprotection) Ad Hoc Reviewer

2016 CIRM: Clinical Trials Grants Working Group Chairman; Translational Discovery Working Group Chairman; Quest Awards Reviewer; Clinical Trial Awards Chairman; Translational Center Chairman

2016 American Board of Surgery – Pediatric Surgery Examiner

2016 National Institutes of Health – Pediatric Critical Care and Trauma Scientist Development Program, National Advisory Committee

2017 Paul G. Allen Family Foundation Award Reviewer - TBI/Concussion

2017 National Institute of Health – NINDS 2RG1-BDCN-Y (02) Acute Brain Injury and Regeneration; Study Section Chairman

2017 American College of Surgeons; Children’s Surgery Surveyor

2017-2023 National Institutes of Health – NINDS, BINP Study Section Permanent Member

2017 Houston Methodist Neuroscience Research Symposium Session Chair (Regeneration & Plasticity)

2017 Gulf Coast Consortium Chair – Regenerative Medicine Cluster

2017 CIRM: Quest Award Reviewer; Permanent GWG Member Clinical Trial Awards Reviewer

2017-2023 APSA Research Committee/APSA Foundation Grant Reviewer

2017 PSI Foundation/DOD Ad Hoc Grant Reviewer

2017 French Programme of Clinical Research (PHRC) – Ministry of Social Affairs and Health – Ad hoc Grant Reviewer

2017 National Institutes of Health – Pediatric Critical Care Research Network External Scientific Interest Group

2018 APSA Legacy Project Interviewer

2018 CIRM Clinical Trials Grants Working Group

**Service on the University of Texas Medical School at Houston Committees:**

1. Residency Advisory Council, Department of Surgery, University of Texas Health Science Center at Houston, 1993-1994.
2. House Officer Association Representative, University of Texas Health Science Center at Houston 1993-1994.



3. Faculty Senate, University of Texas Medical School-Houston 1996-1997; 2001-2002; 2004-2006.
4. ACGME Residency review committee for Department of Pediatrics, University of Texas Health Science Center at Houston, 1994.
5. Student Evaluation and Promotions Committee, 2001-2005.
6. Research Conflict of Interest Committee, 2006-Present.
7. Faculty Appointments, Promotion & Tenure Committee: Ad Hoc Member, 2007-Present.
8. Advisory Committee on Resource Development and Utilization, 2008.
9. Center for Clinical and Translational Sciences
  - a. Institutional Data Safety Monitoring Board Member
  - b. CCTS Engine of Innovation
  - c. CCTS Investigator/Mentor
  - d. KL2 Scholar Mentor
10. Faculty Grievance Committee, 2010.
11. KL2 CCTS Grant Reviewer, 2014.
12. SAHRANG (sub-arachnoid hemorrhage recovery and galantamine) Data Safety and Monitoring Board, 2016-Present.

**Service on the University of Texas Medical School at Houston Affiliated Hospital Committees:**

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|--------------|--|
| 1996-Present | Director-PAT for Pediatric Trauma Center Development (Children’s Memorial Hermann Hospital) Directorship of the Pediatric Trauma Program entailed developing the processes and material, and personnel required to meet the standard of the American College of Surgeons Level I Pediatric Trauma Center. The evolution began with no personnel/resources to what is now has a dedicated Pediatric Trauma Program Manager, Registrars, and a full service Acute Care Nurse Practitioner run Pediatric Trauma Service. During this time, the Pediatric Trauma volume doubled in size. Benchmarked outcomes to NTDB standards have demonstrated lower injury adjusted mortality rates compared to other Level I Trauma Centers and excellent solid organ preservation rates. Venue for quarterly pre hospital airway course; annual pre-hospital pediatric Trauma conference. <u>There have been five successful verification visits during this time frame.</u> |
| 1996-Present | Pediatric Operating Room Subcommittee (Memorial Hermann Hospital)  |
| 1996-1998    | Pharmacy and Therapeutics Committee (Memorial Hermann Hospital)  |
| 1999-Present | Medical Staff Peer Review Committee (Memorial Hermann Hospital)  |
| 2003-2005    | Chair – Medical Staff Quality Assurance (Memorial Hermann Hospital)  |
| 2005-2008    | Co-Chair Pediatric Medical Staff Quality Assurance (Children’s Memorial Hermann Hospital)  |
| 2009         | Ophthalmology Chair Search Committee (Successful – Robert Feldman, MD)   |
| 2012         | Transfer Committee   |
| 2015-2016    | Texas Trauma Institute Chief Search Committee Chair (Successful – Lillian Kao, MD)   |
| 2017         | Pediatric Cardiovascular Surgery Chief Search Committee Chair (Successful – Jorge Salazar, MD)   |
| 2018         | Emergency Medicine Chair Search Committee  |

**Sponsorship of Candidates for Postgraduate degree (Includes undergraduate, graduate and post-doctoral candidates): Majority funded via: National Institutes of Health: 2T35DK07676-22; 2014-2019 short term research training (Faculty Mentor; Kone-PI)**

1. Sheena Kim: (NIH sponsored summer medical student research program, 1991); Project: Hollow fiber membrane removal of circulating endotoxin.
2. David Butler: (NMF/Bristol-Myers-Squibb Scholarship, 1999) Project: Endotoxin increases microvascular permeability associated with cardiopulmonary bypass. Manuscript Published/Abstract Published (J Surg Rsch) Pediatrics Residency
3. Laura Johnson, MD: (Neonatology post-doctoral fellow, 2000). Project: PMN priming by gut lymph after ECMO. (Pediatrics Faculty-UT Houston)
4. Jarrod Little: (American Heart Association Cardiovascular Diseases Scholarship, 2000). Project: Mechanisms of PMN priming by gut lymph. Otolaryngology Residency; Assistant Professor of Plastic & Reconstructive/Head & Neck Surgery, University of Louisville.
5. Jeff Padalecki: (NIH sponsored summer medical student research program, 2003); Project: Does enteral feeding improve resuscitation induced ileus? (NIH T35 DK 007676-14) Manuscript Published/Abstract Published (J Surg Rsch) Orthopaedic Surgeon – Private practice, Austin, TX.
6. Samuel Lance: (NIH sponsored summer medical student research program, 2005); Project: Role of aquaporins in the resolution of resuscitation induced intestinal edema. (NIH T35 DK 007676-14) Manuscript In Press/Abstract Published (Crit Care Med) Plastic Surgery Residency, UC-Davis.
7. Zachary Wright: (NIH sponsored summer medical student research program, 2005); Project: NF- $\kappa$ B and resuscitation induced gut edema. (NIH T35 DK 007676-14) Manuscript In Press/Abstract Published. Internal Medicine Residency
8. LeeAnn Sloan: (NIH sponsored summer medical student research program, 2007); Project: Neural Stem Cell Transplantation for Traumatic Brain Injury. (NIH T35 DK 007676-14); Winner Student Travel Award for Presentation at Academic Surgical Congress, Huntington Beach, CA, 2008. Manuscript in J Surg Res; Oral presentation at American College of Surgeons, South Texas Chapter, Houston, TX, 2008. 2010-UTSW General Surgery Resident.
9. Scott Collins: UT BME Graduate Student – 2008-2009: Microfluidics and Tissue Scaffolding Designs. Thesis: “Guided vascular growth by mesenchymal stem cells”. (Industry) CSO TeVido, Inc.
10. Lindsey Fogle: (NIH sponsored summer medical student summer research program, 2008); Project: Mechanotransductive forces mimic intestinal edema induced STAT-3 activation. (NIH T35 DK 007676-14); Manuscript Accepted; Abstract Published (Surgical Forum/JACS, 2009). Resident in Pathology (2011); Internal Medicine Faculty, UT Health (2015).
11. Brooke Huffsmith: (NIH sponsored summer medical student summer research program, 2009); Project: Inflammatory response after traumatic brain injury. (NIH T35 DK 007676-16)
12. Ngoc Pham: (Scholarly Concentration Program: Molecular Basis of Disease Program, 2010-2012) Project: Degenerate cloning of E-Cadherin in intestinal tissue.
13. Chelsea Thomas: (NIH Sponsored summer medical student research program, 2011). Project: Placental derived stem cell effect on TBI. (NIH T35 DK 007676-18). Webber Research Award (2<sup>nd</sup> place), 2011. Scholarly Concentration Program: Microglial activation after TBI. Abstract published (Surgical Forum/JACS 2012).

14. Stephen Williams: (Summer Research Program, 2012). Project: Morphology of activated microglia after TBI. UT-Houston Medical Student; Pediatrics Residency.
15. Henry Caplan: (Summer Research Program, 2013). Project: Effects of MAPC on microglial phenotype after TBI. Extramural presentation at TAMU Institute for Neuroscience; Manuscript Accepted. UT Health Neurosciences Research Center 2016 Distinguished Medical Student in Neuroscience. (NIH T35 DK 007676-18). General Surgery Resident, UT Health.
16. Grace Philip: (Summer Research Program, 2013). Project: Microglia response to TBI. Extramural presentation at TAMU Institute for Neuroscience.
17. Matt Mitchell: (Summer Research Program, 2014). Project: DT MRI evaluation of TBI – effects of MAPC treatment on imaging biomarkers. 2<sup>nd</sup> Place Mission Connect Poster Competition.
18. Pam Zelnick: (Summer Research Program, 2014). Project: TSPO as an immunohistochemistry marker for activated microglia after TBI.
19. Margaret Johnson: (Summer Research Program, 2015). Project: Microglial activation after TBI. Dean's Research Scholarship Award. UAB General Surgery.
20. Dong Liu: (International Summer Research Program, 2016). Project: Microglial activation: IBA-1 vs. TSPO binding to quantify activity.
21. Colby Rozean: (Summer Research Program, 2017). Project: Design of a novel, sealable thomboelastography device. 1<sup>st</sup> place Summer Research Student Research Presentation.
22. Fanni Mandy-Cardenas: (Summer Research Program, 2018). Role of the intestinal microbiome in modulating the inflammatory response to TBI.

#### **Post-Doctoral Fellows:**

##### **NIH T32 GM 0879201: Trauma Research Training Program**

1. Stacey Moore-Olufemi, MD (2002-2004); Developed novel model of resuscitation induced intestinal edema. Began work on mechanisms of edema induced gut dysfunction, describing iNOS mediated smooth muscle dysfunction. Developed model of intestinal ischemic preconditioning and mechanisms of organ protection. Matriculated to Pediatric Surgery Residency, University of Texas-Houston (2007-2009). Assistant Professor of Pediatric Surgery (2009-Present). Recipient Robert Wood Johnson/Harold Amos Foundation Career Development Award (2010-2014).
2. Ravi Radhakrishnan, MD (2004-2006); Described physical characteristics of edema-induced intestinal dysfunction using engineering methods. Subsequently defined the cytoskeletal/subcellular events that cause the tissue level changes. Re-entered General Surgery Residency at University of Texas-Houston Medical School, (2006-2009). Pediatric Surgery Residency – Northwestern McGaw Medical School/Children's Memorial Hospital; Chicago, IL, (2009-2011). Assistant Professor of Pediatric Surgery, UTMB, Galveston, Texas (2011-2014). Associate Professor of Pediatric Surgery and Leonard & Marie Rosoff Professorship in Surgery, UTMB, Galveston, Texas (2015-Present). Program Director; General Surgery Residency.
3. Matthew Harting, MD (2006-2008); Developed a controlled-cortical impact model of TBI with treatment using GFP (+) bone-marrow progenitor cells and mesenchymal stem cells. This included a novel flow-cytometry based method to regionally quantify cell migration in the brain. Described the regional pro-inflammatory microenvironments of TBI. Used mesenchymal stem cells, neural progenitor cells, and bone marrow derived mononuclear cells in models of TBI and stroke. Completing General Surgery Residency at University of Michigan (2008-2011).

- Pediatric Surgery Resident- University of Washington/Seattle Children's Hospital (2011-2013). Assistant Professor Pediatric Surgery – UT Health (2013). CTSA/CCTS Scholar (2015).
4. Peter Walker, MD (2008-2010); Use of multipotent adult progenitor cell treatment of traumatic brain injury. Modulation of the inflammatory response to TBI using progenitor cell transplantation. Defined novel role of MAPC-Spleen interactions to alter the intra-cerebral macrophage phenotype after TBI. Winner: President's Award for outstanding basic science research, South Texas Chapter ACS (2008). Independent grant funding: BD Biosciences: T-regulatory cells as a therapeutic target for progenitor cells in traumatic brain injury. General Surgery Resident 2010-2013. MIS Fellowship – UT Health (2013-2014). Assistant Professor of Surgery – UT Health (2014). General Surgery Practice – Florida (2017).
  5. Shinil Shah, MD (2008-2010); Developed advanced models of abdominal compartment syndrome and intestinal edema. Mechanisms of edema induced intestinal dysfunction. Identified mechanotransductive mechanism of signal transduction that initiates/amplifies edema induced organ dysfunction. Winner: Outstanding basic science research award, South Texas Regional Committee on Trauma (2009), Outstanding basic science research award, Region VI (2010); Winner: Best manuscript from new Association of Academic Surgeons for, "Evaluating the potential role of nitric oxide as a mediator of hydrostatic edema mediated intestinal contractile dysfunction,"(2010). General Surgery Resident Award (2010); General Surgery Resident (2010-2013). Raleigh Ross Scholar, UT Health (2012). Chief Resident of the Year. MIS Fellowship – UT Health (2013-2014). Assistant Professor of Surgery – UT Health (2014).
  6. Supinder Bedi, PhD (2010-2012); Progenitor cell therapies for neurological injury. Role of microglial phenotype/activation in TBI and effects of progenitor cells as an adoptive immunotherapy targeting microglial response to TBI. Winner: University of Texas- Houston Post-Doc Travel Award (2010). Instructor in Pediatric Surgery – Research (2012). Assistant Professor Pediatric Surgery - Research
  7. George Liao, MD (2013-2015); Use of adult adherent stem cells (MSCs, MAPCs, hfMSCs) in immunomodulation of TBI and tissue engineering applications. Developed novel assay for BBB permeability. American College of Surgeons 2014 Excellence in Research Award Recipient. Trauma/Critical Care-Los Angeles, CA.
  8. Margaret Jackson, MD (2015-2017); Development of a model of CPB induced neurological injury and cellular therapies. Microglial knockout mouse model of TBI. SUS Scholarship/Storz Fellowship Award Finalist (2015).
  9. Mitchell George, MD (2016-2018); Bioreactor designs development for mechanotransduction of stem cells/induction of gene programs. Demonstration that clinical cellular therapeutics express tissue factor and elicit a pro-coagulant response that varies with cell source and type. Winner Resident Research Award, UT Health Department of Surgery (2018).
  10. Henry Caplan, MD (2018-2020); Use of Treg cells to mitigate inflammation after trauma.

**Dr. F. Kohler Chemie GmGH Scholars:**

1. Henning Sauer, MD (1998-2000); Focused on role of varying myocardial protection strategies with emphasis on relationship of myocardial edema and myocardial performance.

2. Uwe Fischer, MD (2000-2002); Extended work on PMN/oxidative injury of myocardium during cardioplegic arrest. Demonstrated mechanisms of apoptosis associated with cardioplegic arrest. Defined relative roles of hypothermia and edema on myocardial dysfunction.

**Alexander von Humboldt Foundation Fellow:**

1. Uwe Fischer, MD (2007-2009); Developed novel therapeutics for minimizing myocardial dysfunction associated with various myocardial injuries. Defined the effect of NF- $\kappa$ B blockade on gut I/R induced myocardial dysfunction. Used AAV-GFP tagged gene transfer as a strategy for myocardial protection. Was the primary author on one of the most highly cited articles (over 50 citations in under 2 years) that was listed as a “seminal article/core article” in Stem Cells and Development. General Surgery Resident, University of Texas-Houston (2009-2014). Vascular Surgery Residency – The Methodist Hospital (2014-2016). Vascular Surgery – Maine Medical Center.

**DeBakey Institute Post-Doctoral Fellow:**

1. Ji Chu, PhD (2010-2012); Studied the molecular mechanisms of myosin light chain phosphorylation and regulation as related to intestinal contractility in setting of edema.

**Brown Foundation Fellows:**

1. Robert Hetz, M.D. (2011-2013); Studied the effects of cell based therapies on traumatic brain injury. Developed a modified splenocyte MLR to monitor MAPC potency; novel potency assays of MSC. Developed and characterized a novel & good grade human amniotic fluid MSC working cell bank. General Surgery Resident, UT Health. Thoracic Surgery Fellow, MD Anderson Cancer Center (2016). Assistant Professor of Thoracic Surgery, UT Health.
2. Alex Olsen, M.D. (2011-2012); Studied the immune modulatory effects of autonomic nervous system on innate immune system after injury. Evaluated neuroinflammatory reflex arc after TBI and effects on intestinal function. General Surgery Resident, St. Joseph’s Hospital - Phoenix (2014). Critical Care Fellowship, Baylor College of Medicine/Texas Children’s Hospital (2014-2015).

**Glassell Foundation Fellow:**

1. Christopher Corkin (2014); Studied the effects of various stem cell/scaffold combinations on diaphragm – tissue engineered constructs.
2. Benjamin Aetker (2014); Effects of stress induced gene programs in MSC function as a therapy for TBI. Neurology Resident, UT Health (2016).
3. Christopher Schneider (2016-2017); Immune mechanisms of post-TBI inflammation/secondary brain injury. Mission Connect Post-Doctoral Research Award (2016). Plastic Surgery Residency, LSU (2017).
4. Akshita Kumar (2017-2019); Effects of the microbiome on TBI outcomes.
5. Louis Carillo (2017-2019); Wharton’s Jelly as a cell/hydrogel construct to repair bony defects. Morphometric studies in pediatrics to enable REBOA use in children.

### **Pediatric Critical Care Medicine Fellows:**

1. Sowmaya Kallur, M.D. (2014-2016); Scholarly oversight committee in conjunction with MSC biology program. Use of alginate beads/MSCs as a local-regional delivery system of MSCs for TBI.

### **CETIR (Center for Translational Injury Research) Fellows:**

1. Phillip Le Tourneau, M.D. (2009-2011); Immunomodulatory effects of MSCs in TBI. Inflammatory response to resuscitation. Instrumental in a number of mechanistic studies in MSCs: TBI resulting in very high impact journal publications – Science/Translational Medicine.Trauma/Critical Care Residency – MGH/Harvard.
2. Elaheh Rahbar, Ph.D. (2012-2014); Resuscitation strategies to minimize edema formation. K99-R00 application. Assistant Professor, Wake Forrest Institute Regenerative Medicine (2014).
3. Max Skibber (2016); Mechanotransduction of MSCs: Device Development. I-Corps Fellow, National Science Foundation. Tulane University Pre-Medical Masters Program (2017-2018).

### **Faculty:**

1. Stacey Moore-Olufemi, MD (2009-2015): Modeling of NEC/gastroschisis and short bowel syndrome with a focus on epigenetic regulation of phenotypic response to pro-inflammatory stimuli. Clinical correlative studies exploring functional genomics and biomarkers of NEC are being developed. Recipient of Robert Wood Johnson – Harold Amos Career Development Award: “Molecular Mechanisms of Intestinal Dysfunction in Gastroschisis” (2010-2014).
2. Shibani Pati, MD, PhD (2009-Date): Grant sponsor/mentor for translational component of career enhancement award in stem cell research with a focus on adult stem cell populations as applied to neurological diseases. K18 Award recipient in stem cell research training. Assistant Investigator – BSRI, San Francisco, CA and Assistant Professor Laboratory Medicine – UCSF.
3. Shiraz Younas, MD (2009-Date): Clinical studies in traumatic pediatric femur fractures. Development of clinical research infrastructure for future clinical trials.
4. John Hagan, PhD (2012-Date): Studies using inhibitory RNA strategies in cancer. KL2 mentor for “LIN28/let-7 Pathway and 3’ RNA uridylation in ovarian cancer.”
5. Matthew Harting, MD (2013-Date): Development of novel therapeutic strategies to treat CDH, including stem cell based treatments. CTSA/CCTS Scholar Award (2015-2018).
6. Manish Shah, MD (2015-Date): Cortical plasticity in spastic diplegic children after selective dorsal rhizotomy. Recipient, NIH/NICHD Loan Repayment Award (2016).
7. Robert Hetz, MD (2018-Date): Use of cellular therapeutics to reduce complications of thoracoabdominal aneurysm repair.

### **Biomedical Engineering Research Program:**

- A. UTCBME Internship
  1. Natalia Velez (2009) – The role of iNOS in intestinal edema. (Manuscript Published: J Surg Res.)
  2. Huram Mok (2009) – Intravenous multipotent adult progenitor cell therapy for traumatic brain injury. (Manuscript Submitted)
  3. Michael Yim (2008) – Effects of catheter-based delivery systems on progenitor cell survival and function. (Manuscript Submitted)

4. Sean Paschall (2008) – Electrospun nanofiber tissue scaffolds for organ replacement/repair.
  5. Greg Minwell (2007) – Circulatory system modeling for intravascular catheter navigation system.
  6. Tanmay Gokhale (2007) – Mechanotransductive forces in small intestine. (Manuscript Submitted)
  7. Lindsey Villarrubia (2006) – Interstitial pressure-volume relationship with resuscitation induced gut edema. (Manuscript Published). Resident Pediatrics; Washington University.
  8. Lindsey Fogle (2006) – Dynamic fluid flow modeling of an arteriovenous resuscitation device. (Manuscript Published). Resident Pathology; UTSA
  9. Kunal Shah (2005) – Bioimpedance analysis quantifies level of edema and capacitance of small intestine. (Manuscript Published)
  10. Sima Yazdani (2005) – In vitro pressure – flow modeling of ATR device.
  11. David Rainosek (2005) – Cardiovascular variable display project.
- B. Bioengineering Research Partnership
1. Nate Kemp, PhD: Assisted in developing control system feedback for Active Thermal Resuscitation.
  2. Kevin Aroom, MS: Integrated combustion/manufacturing and control systems for GEN 3 ATR device. (Master’s thesis)
  3. Ozgur Ekici, BS: First principle heat exchanger calculations, including materials testing.
  4. Alex Bjelica, BS: Initial translation of optical/ultrasound guided automated thoracic access.
  5. Albert Espinosa, BS: Automated vascular access device. (Master’s Thesis)
- C. Senior Tutorial
1. Sheena Black: Real time calorimetric determination of HCT.
  2. Santhisri Kodali: Real time calorimetric determination of HCT.
  3. Chris King: Real time calorimetric determination of HCT.
  4. Kaiwun Lee: Real time calorimetric determination of HCT.
- D. Summer College Internships
1. Amanda Hayley (2008) (USC): Osmolar effects on progenitor cell size/function.
  2. Adam Baumgartner (2008) (UT-Austin): Neural progenitor cell culture optimization.
  3. Stephen Williams (2010) (UT-Austin): Scaffolds/Cell Interaction. UT Medical School (2011).
  4. Modupe Olufemi (2011) (DeBakey High School for Health Professions): Microglial Morphometrics in TBI. Bryn Mawr College - 2013.
  5. Fanni Mandy-Cardenas (2013-2014) (Cornell): Microglial activation after TBI. UT Medical Student (2021).
  6. Franciska Mandy (2013-2014) (Cornell): Microglial activation after TBI.

**Current Teaching Responsibilities:**

1. Problem based learning instructor: Junior student surgery rotations. (1996-1998)
2. Oral examinations: Junior student surgery rotations. (1996-1998)

3. Surgery House Officer Clinical Teaching: (1996-Present)
  - i. Departmental Morbidity and Mortality
  - ii. Divisional Morbidity and Mortality
  - iii. Teaching rounds (patient care teaching)
  - iv. Intraoperative teaching (technical components of surgery)
  - v. Pediatric house officer, clinical teaching – didactic lecture series; mock oral exams
4. Teaching of Surgical Tutorial for Senior Medical students. (1997-1998)
5. Chairman CME course: “Pediatric Review and Update, 1998”, University of Texas-Houston Medical School (1998)
6. Instructor: Pediatric Advanced Life Support (PALS) (1996-2000)
7. Instructor: Advanced Pediatric Life Support (APLS) (1996-2000)
8. Instructor: Hermann Hospital Life Flight cadaver procedure lab; update on TBI management
9. Pediatric Transport Team curriculum
10. Instructor: Advanced Trauma Life Support (ATLS) – 2-4 Courses/Year (1998-date)
11. Lecturer: Neonatal Fellows Conference: Surgical Problems of the Neonate.
12. Lecturer: ECMO Team Training Conference (Annual) (1996-Present) – 1 Course/Year
13. The Center for Biomedical Engineering: University of Texas-Houston and MD Anderson Cancer Center (2004-Present)
14. Instructor: Seminar-Topics in Translational Research (2006-2015)
  - a. Innovation by Surgeons
  - b. Translational Surgical Research and Regenmed 2.0
15. Developer: Pediatric Trauma Airway Management Course for pre-hospital providers. 3 Courses/Year (2003-2015)
16. C-STEP: Teaching Faculty. 1 Seminar/Year
17. Joint Admissions Medical Program Seminar- 1 Lecture/Year.
18. Lecturer: Graduate School of Biomedical Sciences: Topics in Neurobiology of Disease (GS140021) – Stem cells and Regenerative Medicine.
19. Lecturer: Graduate School of Biomedical Sciences: Stem Cells for Neurological Injury; 1 Lecture/Year.
20. Uniformed Services University of Health Sciences: eCurriculum for Pediatric Trauma Care/Medical Services for Children Program
21. Graduate Seminar: Neural Control of Organ Regeneration TBI/SCI (Annual)

**Visiting Professor Lectures:**

- |      |   |
|------|---|
| 2003 | University of Chicago Medical School                |
| 2005 | University of Michigan Medical School               |
| 2006 | University of Texas-Southwestern Medical School     |
| 2006 | University of Iowa Medical School                   |
| 2006 | Ohio State University/Columbus Children’s Hospital  |
| 2007 | Texas A&M University College of Veterinary Medicine |
| 2009 | University of Louisville College of Medicine        |
| 2011 | Monash University Medical School                    |
| 2011 | Tufts University Medical School                     |
| 2012 | National Institutes of Health                       |
| 2013 | University of Nebraska Medical School               |



2014	Uniformed Services University of the Health Sciences – National Institutes of Health
2015	University of Illinois College of Medicine Robert D. Hart, MD Endowed Lectureship Series
2015	Washington University Medical School; Jesse Ternberg, MD Endowed Lecture
2018	Vanderbilt University Medical Center

### **Current Grant Support:**

1. National Institutes of Health: 2T32 GM 0879201-11A1: \$1,835,646 – 2001-2017. *NRSA Institutional Training Grant. Trauma Research Training Program.* Principal Investigator. (Transferred from JB Holcomb)  
Fellow – Stacey Moore-Olufemi, M.D. (2002-2004)  
Fellow – Ravi Radhakrishnan, M.D. (2004-2006)  
Fellow – Matt Harting, M.D. (2006-2008)  
Fellow – Peter Walker, M.D. (2008-2010)  
Fellow – Supinder Bedi, Ph.D. (2010-2012)  
Fellow – George Liao, M.D. (2013-2015)  
Fellow – Margaret Jackson, M.D. (2015-2017)  
Fellow – Mitchell George, M.D. (2016-2018)  
Fellow – Henry Caplan, M.D. (2018-2020)
2. National Institutes of Health: 1R01 NS077963-01A1: \$3,432,964. 2013 -2020. *Phase 2 Pediatric Autologous BMMNC for Severe Traumatic Brain Injury.* Principal Investigator.
3. National Institutes of Health: 1R01 NS090935-01A1: \$2,588,836. 2015-2020. *Reducing neuronal loss after traumatic brain injury.* Co-Principal Investigator. (Dash)
4. CDMRP/MRMC/Joint Warfighter Medical Research Program: JW150014: \$6,800,000. 2016-2020. *Joint Warfighter Medical Research Program. Cellular Therapy for TBI: Phase 2a/2b.* Principal Investigator. Supplemental Funding: \$1,500,000. *Microglia imaging to evaluate the neuroinflammatory component of traumatic brain injury.* Principal Investigator.
5. State of Texas Emerging Technology Fund: \$3,150,000 – 2011-2019. *Program in Children’s Regenerative Medicine.* Principal Investigator.
6. Bentsen Foundation: \$486,684 - 2012-2019. *Amniotic fluid derived MSCs for neurological injury.* Principal Investigator. Competitive Renewal: \$300,000 – 2015-2017.
7. Let’s Cure CP: \$110,000 – 2014-2019. *ACT for CP Clinical Trial Support.* Principal Investigator.
8. Coagulex, Inc.: \$750,000 – 2014-2020. *MEMS-Based Coagulometer Development.* Principal Investigator.
9. Dunn Foundation: \$8,000 – 2014-2019. *TMC-GCC Collaborative Workshop: Regenerative Medicine in Neuroscience & Neuroengineering.* Principal Investigator.

10. Ladybug Foundation: \$40,000, 2015-2019. *Studies in Pulmonary Hypertension*.
11. CBR, Inc.: \$620,622 – 2016-2019. *Tools and Technologies for the harvest/storage/deployment of Wharton's Jelly in Pediatric Craniofacial Surgery*. Principal Investigator.
12. Biostage, Inc: \$312,300 – 2016-2019. *Manufacturing of tissue engineered esophagus*. Principal Investigator.
13. Texas Medical Center: \$322,000 – 2017-2020. *Administration of umbilical cord blood progenitors for neurological injury in infants with CDH*. Principal Investigator.
14. DOD/MRMC via Medical Technology Enterprise Consortium (MTEC): \$3,499,461. 2018-2021. *Stem cells for the prevention of inflammatory complications of severely injured patients*. Principal Investigator.
15. Department of Defense/SBIR H181-004-0015: \$150,000. *Biocompatible scaffolds coupled with iPSC derived NSC for regeneration of brain tissue resulting from severe TBI*. Academic PI in partnership with Fabricotech (Chin PI).

**Endowments:**

1. George and Cynthia Mitchell Distinguished Chair in Neurosciences. Established 2003. (\$1,700,000)
2. Judith Hoffberger Cellular Therapeutics Laboratory. Established September 2009. (\$500,000)
3. Evelyn H. Griffin Stem Cell Therapeutics Research Laboratory. Established September 2009. (\$2,000,000) FDA Establishment Identifier: 3009561521. Supplement: William & Madeline Welder Smith Foundation. (\$10,000); Supplement 2014 (\$5,000,000)
4. Glassell Foundation Stem Cell Research Working Group 1. Established April 2011. (\$1,500,000)
5. Dewar Pediatric Head Injury Research Fund. Established July 2012. (\$50,000)
6. Glassell Foundation Stem Cell Research Program. Established September 2013. (\$10,000,000 – endowment & operational)
7. Grace Reynolds Wall Research Fund. Established November 2017. (\$500,000)

**Pending Grant Support:**

1. National Institutes of Health 1RO1 NS073658-01A1: \$2,913,448. 2012-2017. *Vulnerability of frontal lobe networks after traumatic brain injury in young children*. Co-Investigator (Ewing-Cobbs) (Impact/Priority Score 30; Percentile 25); In Revision.
2. National Institutes of Health/NICHD 1R24 HD085921-01A1: \$3,312,853. 2015-2020. *Thrombelastography-guided resuscitation of pediatric trauma and associated*

*coagulopathy*. Program Director. (Priority Score 24:11/2016) Revised as R01

3. National Institutes of Health: \$1,574,474. 2016-2021. *Pediatric Injury: Modules to Manage Stress*. Co-Investigator (Ewing-Cobbs). (Priority Score 20:5/2017)
4. National Institutes of Health/NINDS: 1R01: \$. 2017-2021. *Innovative non-invasive electrophysiological measures for tailored rehabilitation strategies in spinal cord injury*. Co-Investigator (Zhou).
5. National Institutes of Health/NCAT3: X02/UG3/UH3: AZD0328 to reduce inflammation and damage following traumatic brain injury. (Priority Score 34:10/2018)
6. National Institutes of Health/NICDR: R03: *Wharton's jelly to augment repair of alveolar cleft palate*. Co-Investigator (Grieves). (In Revision)
7. National Institutes of Health/NHLBI: \$1,875,000 - 2017-2020. *Mechanotransduction bioreactor for immunomodulation of MSCs*. Co-Investigator (Wenzel). (Priority Score 59:10/2018)

#### **Past Grant Support:**

1. Shriner's Burns Institute: \$288,444 - 1991-1994; *Pathophysiology of ovine smoke inhalation injury treated with intravascular oxygenation and carbon dioxide removal device and intratracheal pulmonary ventilation*. Co-Investigator. (Zwischenberger)
2. Children's Miracle Network Telethon Grant: \$25,850, 1997-1998. *Peripheral microvascular permeability in the systemic inflammatory response syndrome*. Principal Investigator.
3. Children's Miracle Network Telethon Grant: \$8,300, 1997-1998. *Equipment funding for Pediatric lung injury and inflammation research group*. Co-Principal Investigator. (Okhuysen)
4. Merck KGaA: \$125,500, 1999-2000. *Effects of Na<sup>+</sup>/H<sup>+</sup> exchange inhibition on cardiac function*. Principal Investigator.
5. National Highway Transportation Safety Administration: \$50,000 – 1999-2001. *Development of a pediatric functional capacity index*. Consultant.
6. University of Texas JSP Grant \$1,500 – 2000. *Development of PMN superoxide assay*. Principal Investigator.
7. National Institutes of Health 1 K08 GM 00675-01: \$596,430 – 1999-2005. *Mentored Clinical Scientist Award. Microvascular injury during extracorporeal life support*. Principal Investigator.
8. United States Army Medical Research and Material Command/TATRC 04343002: \$98,369 – 2004-2005. *A portable fluid warming system*. Co Principal Investigator. (Gill)

9. National Institutes of Health 1 R21 HD042659-01A1; \$222,750 – 2003-2006. *Multi-center Traumatic Brain Injury Network*. Principal Investigator.
10. National Institutes of Health P30 DK 56338; \$10,000 – 2005-2006. *Digestive Diseases Center Award – Pilot/Feasibility. Role of iNOS in Gut Edema Induced Ileus*. Principal Investigator (Subcontract).
11. University of Texas Center for Biomedical Engineering/Charles W. Tate and Judy Spencer Tate Charitable Foundation; \$20,000- 2005-2006. *Engineering problems of portable biologic fluid warmers*. Co-Principal Investigator (Gill).
12. American Heart Association Grant-in-Aid; \$124,000 – 2005-2008. *Mechanisms of myocardial dysfunction after gut ischemia/reperfusion*. Principal Investigator.
13. Charles W. Tate and Judy Spencer Tate Charitable Foundation; \$30,000 – 2006-2007. *A System for Automated Field Tube Thoracostomy*. Co-Principal Investigator (Gill).
14. Congressional Mandated Program/United States Army Medical Research and Material Command. T5 (Texas Training and Technology against Trauma and Terrorism); \$748,609 – 2004-2008. *Portable veno-venous rewarming for hypothermia*. Principal Investigator.
15. National Institutes of Health/NHLBI P018/N01-HB-37163 (Gee PI/Baylor College of Medicine Subcontract); \$29,468.80 – 2006-2008. *Production assistance for cellular therapies*. Principal Investigator. (Subcontract)
16. National Institutes of Health M01 RR 02558; \$30,000 – 2006-2008. *Safety of autologous stem cell treatment for traumatic brain injury in children*. Principal Investigator.
17. National Institutes of Health ULI RR024148; \$21,000 – 2006-2008. *Supplement: Safety of autologous stem cell treatment for traumatic brain injury in children*.
18. National Institutes of Health 5 T35 DK 007676-14; \$10,000-2003-2007. *Short-term Research Training*. Subcontract (Rosenfeld).
19. National Institutes of Health 1 R01 NS 046308-01A1; \$1,307,374 – 2004-2009. *Academic Outcomes After Pediatric Traumatic Brain Injury*. Co-Investigator. (Ewing-Cobbs)
20. Texas Higher Education Coordinating Board; \$1,800,000 – 2005-2009. *Center for Engineered Microtherapeutics*. Principal Investigator.
21. National Instruments; \$50,000 – 2007-2009. *Mechanics and control for an automated field tube thoracostomy*. Co-Investigator (Longoria)
22. National Science Foundation; \$90,000 – 2007-2009. *Mechanics and control for an automated field tube thoracostomy*. Co-Investigator (Longoria)
23. USAMRMC/TATRC/DOD: \$872,504 – 2006-2009. *Active thermal resuscitation*. Co-

Principal Investigator (Gill)

24. National Institutes of Health: P50 GM 38529: Project 2; \$213,313 (year 5 budget); 2008-2009. *Molecular pathogenesis of gut injury in multiple organ failure*. Co-Investigator (Ko, T)
25. Kinetic Concepts, Inc.: \$20,000- 2009. *Inflammatory profiling of intra-abdominal sepsis*. (Subcontract).
26. National Institutes of Health: P30 DK 56338: \$25,000 – 2009-2010. *Intestinal Stem Cell Regeneration in Necrotizing Enterocolitis*, Mentor/Sponsor. (Moore-Olufemi).
27. Kinetic Concepts, Inc.: \$275,151 – 2008-2011. *Negative pressure therapy modulates the inflammatory response to intraabdominal hypertension*. Principal Investigator.
28. BD Biosciences: \$10,000 – 2010-2011. T-regulatory cells as a therapeutic target for progenitor cells in traumatic brain injury. Co-Investigator (Walker).
29. National Institutes of Health: 1RO1 NS 21189: \$572,403 – 2010-2012. *Social Cognitive outcome of head injury in children*. Co-Investigator (Levin).
30. National Institutes of Health: 1K01 DK 070758: \$515,008 – 2005-2012. *Effects of edema on cadherins in small intestine*. Co-Sponsor (Uray).
31. USAMRMC-DOD: \$561,012 – 2010-2012. *Active thermal resuscitation*. Co-PI (Gill).
32. California Institute of Regenerative Medicine \$41,069. Cell Therapies in Trauma & Critical Care: Barriers in Translation from Pre-Clinical to Clinical Development. (Pati-PI).
33. Mission Connect: \$150,000 – 2011-2012. *Immunomodulatory Effects of Stem Cell Therapy in Traumatic Brain Injury*. Principal Investigator.
34. The Brown Foundation, Inc.: \$666,667 – 2008-2016: *Program in Regenerative Medicine*. Principal Investigator.
35. National Institutes of Health: 1 RO1 HL 092916-O1A1: \$437,179 – 2009-2013. *Short-term mesenteric lymphatic adaptation to trauma related intestinal edema*. Consultant (Stewart).
36. CBR, Inc.: \$80,000 – 2007-2013. *Protocol development for UCB treatment of ischemic encephalopathy of the newborn*. Principal Investigator.
37. National Institutes of Health: 1K18HL-102256-01A1: \$105,866 – 2011-2013. *Systemic Effects of Bone Marrow Derived MSCs on Vascular Stability*. Mentor (Pati).
38. EMIT, Corp.: \$180,000 – 2009-2014: *Design modifications for active thermal resuscitation*. Principal Investigator.

39. Department of Defense: Combat Casualty Care: W81XWH-11-1-0460: \$1,731,307 – 2011-2015. *Treatment of severe, adult traumatic brain injury using autologous bone marrow mononuclear cells*. Principal Investigator.
40. Robert Wood Johnson/Harold Amos Medical Faculty Development Program Award: \$500,000 – 2010-2015. *Molecular Pathophysiology of Gastroschisis Related Intestinal Dysfunction*. Mentor (Moore-Olufemi).
41. Ladybug Foundation: \$10,000 – 2014-2015. *Mesenchymal stromal exosome isolation for the treatment of pulmonary hypertension*. Principal Investigator.
42. Athersys, Inc.: \$60,000 – 2008-2015. *Multipotent adult progenitor cell therapy for traumatic brain injury. Addendum: Assaying changes in immunobiology select MAPC products*. Principal Investigator.
43. Kinetic Concepts, Inc.: \$390,287 – 2009-2015. *Negative pressure therapy modulation of intestinal lymph flow during resuscitation induced intestinal edema*. Principal Investigator.
44. National Institutes of Health: 2R01NS046308-10A: \$3,622,165 – 2009-2016. *Traumatic Stress After Pediatric Injury: Neurological Influences*. Co-Investigator (Ewing-Cobbs).
45. Athersys, Inc.: \$65,000 - 2012-2016. *Phase III Pre-Clinical Studies in Cellular Therapy for TBI*. Principal Investigator.
46. CBR, Inc.: \$80,000 – 2015-2016. *Assaying the potency of hUCB on BBB permeability*. Principal Investigator.
47. National Institutes of Health: R43HD086076-01: 2015-2016. *NEOSAFE: Novel Materials for Manufacturing of Neonatal Devices*. Consultant.
48. CBR, Inc.: \$500,000 – 2013-2017. *Autologous cellular therapy for cerebral palsy*. Principal Investigator.
49. Center for Disease Control: 1 U01 CE 002188-01: \$2,749,792 – 2012-2017. *Developmental consequences of Pediatric TBI*. Co-Principal Investigator (Ewing-Cobbs).
50. National Institutes of Health: 1 U44-NS-077511-01: \$1,925,263 – 2012-2018. SBIR Subcontract – Academic Component: Athersys, Inc.; *Cell Based Therapy for Traumatic Brain Injury*. Co-Principal Investigator (Cox/Mays).
51. Celgene, Inc.: \$237,219 – 2011-2018. *Efficacy of PDA001 and HPDSC for TBI*. Principal Investigator.
52. Men of Distinction Foundation: \$125,000 – 2013-2018. *Pediatric traumatic brain injury Impact of the inflammatory response to injury*. Principal Investigator.
53. National Science Foundation: 1312391: \$250,000 – 2013-2018. *Collaborative Research: Mathematical modeling of biological processes in edematous tissue*. Consultant (Uray).

54. Hope Biosciences, LLC: \$101,129 – 2016-2017. *Assaying the potency of AMSC on BBB permeability after TBI*. Principal Investigator.

### **Inventions/Patents/Intellectual Property:**

#### **Patents:**

1. Gill, Brijesh; **Cox, Charles S.**; “Portable Fluid Warming System.” US Patent 7,261,557; August 28, 2007. Assignee: The Board of Regents of the University of Texas System (Austin, TX). 7,891,974; 8,753,382, June 7, 2014. [PCT/USO5/047209;PCT/US08/070812] Continuation-in-Part, 2007. 11/832,41505855722.4;192404,10/886,191. European Patent Office N..08796439.L-1269; EP Patent #1966546 (Licensed- EMIT Corp); International patent: WO 2014/066370A1; FDA 510(K) submission #K103801.
2. Gill BS, **Cox CS**, Aroom KR; “Centrifugal Pump”. US Provisional Patent Pending. Assignee: The Board of Regents of the University of Texas System (Austin, TX). 61/074,053.; US Patent 12/483,287. Assignee: The Board of Regents of the University of Texas System (Austin, TX) [PCT/US09/04732]. (Licensed- EMIT Corp)
3. Aroom K, Bjelica A, **Cox CS**, Espinoza A, Gil B, Longoria R; “Automated needle insertion mechanism.” US Provisional Patent Pending. Assignee: The Board of Regents of the University of Texas System (Austin, TX) [PCT 13/392, 185].
4. Gill BS, **Cox CS**, Aroom KR, Sheldon JJ, Westerbeck TL. “Portable Body Warming Device.” US Patent US 2012/0065716A1; March 15, 2012. Assignee: The Board of Regents of the University of Texas System (Austin, TX) (Licensed - EMIT Corp)
5. **Cox CS**, Mays RW; “Modulation of splenocytes in cell therapy for traumatic brain injury.” US Patent Pending. Assignee: The Board of Regents of the University of Texas System (Austin, TX) and Athersys, Inc. (Cleveland, OH). 13/150,481; [PCT/US 2011/036231]; 151064180.
6. Gill BS, Aroom K, **Cox CS**. “Blood Coagulometer and Method.” US Patent US 9,753,024 B2; September 5, 2017. Assignee: The Board of Regents of The University of Texas System (Austin, TX). (Licensed – Coagulex, Inc.)
7. Gill BS, Aroom K, **Cox CS**. “Compact fluid warmer.” US Provisional Patent Pending. Assignee: The Board of Regents of The University of Texas System (Austin, TX). 61/716,752 International Patent Publication Number: WO 2014/066370A1 (Licensed – EMIT Corp)
8. Gill BS, Aroom K, **Cox CS**. “Submersible Warming Device.” US Provisional Patent 62/065,111[PCT/US2015/55948] International Publication Number: WO 2016/061459A1 Assignee: The Board of Regents of The University of Texas System (Austin, TX). (Licensed-EMIT Corp)
9. **Cox CS**, Gill BS, Aroom K, Wenzel P. “Methods and Apparatus for conditioning cell populations for cell therapies.” US Provisional Patent 62/183,273; International

Patent Application Number PCT/US2012/039044; Assignee: The Board of Regents of The University of Texas System (Austin, TX). (License option executed by Cellvation/Fortress Bio 2/2016)

10. **Cox CS**, Gill BS, Aroom K, Sharma T. “Devices and methods for umbilical cord processing.” US Provisional Patent 02/303,817; International Patent Application Number PCT/US2017/020664; Assignee: The Board of Regents of The University of Texas System (Austin, TX). (License option executed by CBR, Inc. 6/2016)
11. Gill BS, Aroom KR, **Cox CS**, Sharma T. “Blood coagulometer with discrete indication and method.” US Provisional Patent 62/671,238; Assignee: The Board of Regents of The University of Texas System (Austin, TX). (Licensed – Coagulex, Inc.)

**Disclosures-(Not yet Patented/Licensed):**

1. UTOTM ID: 2006-0053; Method and apparatus for calorimetric determination of hematocrit in an extracorporeal circuit. (Inactive).
2. UTOTM ID: 2007-0023; Apparatus for thermoelectric generation. (Inactive).
3. UTOTM ID: 2008-0054; Immunomodulation by affinity hemofiltration. (Inactive).
4. UTOTM ID: 2008-0061; Neural progenitor/mesenchymal or MAPC stem cell composite graft. (Closed/Transitioned).
5. UTOTM ID: 2009-0005; Impedance mapping for measurement of bowel edema. (Inactive).
6. UTOTM ID: 2009-0011; Endovascular detection and control of hemorrhage. (Inactive).
7. UTOTM ID: 2009-0030; Closed-cycle electronic butane combustion system. (Converted to Patent; Licensed).
8. UTOTMID: 2009-XX; Integrated scanner/bioprinter for tissue repair. (Inactive).
9. UTOTMID: 2010-XX; Negative pressure silo for gastroschisis. (Active).
10. UTOTMID: 2010-XX; Pelvic hemorrhage control catheter. (Inactive).
11. UTOTMID: 2012-XX; Use of a PAK inhibitor for treatment of gastrointestinal motility disorders. (Active).
12. UTOTMID: 2014-0017; Modular cellular bioreactor. (Converted to Patent; Licensed)
13. UTOTMID: 2014-0018; Scaffold management system. (Active).
14. UTOTMID: 2013-0040; Activation of MSC immunomodulatory function by mechanical force. (Converted to Patent; Licensed).
15. UTOTMID: 2014-0003; Use of mechanical infusion to spread donor cells into a scaffold to build a functional 3D compound tissue. (Active).
16. UTOTMID: 2015-02; Electrical manipulation of coagulation.
17. UTOTMID: 2015-03; Shear decay of coagulation.
18. UTOTMID: 2017-0057; A hardware biomechanical force assay. (Active; Converted to Patent).

**Consulting:**

1. Cord Blood Registry, Inc. (2006-Present) Relationship includes membership on scientific advisory board and speaker’s bureau. We have a sponsored research agreement with CBR that assists in clinical trial protocol development. A research conflict of interest plan is in place in the Office of Institutional Compliance.



2. VidaCare, Intraosseous Infusion Device (2004-2006) VidaCare produces intraosseous access devices for fluid resuscitation in austere/difficult vascular access conditions. The engagement with this company has been to provide feedback on device design/utility. The relationship is currently dormant.
3. Gerson Lehman Group: Council of HealthCare Advisors (2003-Present) This is an internet based “connectivity” organization that links subject matter experts with industry to provide forced consultations on topics of interest and/or surveys regarding market development of medical products/biotechnology.
4. Kinetic Concepts, Inc. (2008-2013) KCI produces the wound VAC and has a long standing interest in the application of negative pressure therapy in abdominal compartment syndrome. I serve as a consultant (paid) and we have funded large animal projects exploring mechanisms of NPT modulation of the inflammatory response. Our group also works with KCI in developing advancements in their existing technology.
5. The Sarah Jane Brain Project – National Advisory Board (2008-2012) This is a private effort to develop a comprehensive pediatric acquired brain injury treatment plan. I served on the National Advisory Board; this project is functionally inactive.
6. Athersys, Inc. – Scientific Advisory Board (2007-present) Athersys, Inc. is a publicly traded biotechnology company based in Cleveland, OH. They have licensed the IP of MAPC technology from the University of Minnesota. We are collaborating on the use of MAPC in TBI and stroke. I serve on their CNS Scientific Advisory Board (compensated). Athersys has sponsored research agreements with our group. I am the PI on the academic component of a SBIR grant with Athersys as the industry partner.
7. Auxocell, Inc. (2009-2011) - Collaborative research agreement including a Materials Transfer Agreement of progenitor cells for pre-clinical use in models of traumatic brain injury. This includes a tri-member collaborative relationship with a cell-labeling company (Cell Sense). Auxocell was acquired by Perkins-Elmer, and we have no active collaborations.
8. Proteus Ventures (2009-2010) – Ad hoc consulting regarding clinical grade stem cell production and Go-To-Market strategies.
9. Patton Surgical, Inc. (2008-2011) – Collaborative research agreement to provide consultation on novel medical device development. This company successfully exited/was acquired and relationship concluded.
10. International Society for Cellular Therapy- Industry Task Force (2010- Present) - Engage industry stakeholders to review barriers to commercialization and make recommendations on priority issues facing translation of cell therapies.
11. Celgene, Inc. DBA Cellularity, Inc. (2010-Present) – Collaborative research agreement regarding translational therapeutic use of cellular treatments for

neurological injury.

12. Back Bay Life Science Advisors (2012-2014) – Ad hoc consulting regarding drug translation relative to our work in intestinal smooth muscle dysfunction.
13. Pfizer Neuroscience (2015-2017) – Consulting regarding Neuroinflammatory modulation and the development of new agents to target inflammation after TBI.
14. HLI, Inc./Celgene Cellular Therapeutics, Inc./Cellularity (2015-Present) – Consulting and collaboration regarding genomic profiling of traumatic injury patients and response to treatment.
15. Lynntech, Inc. (2014-2017) – Consultant on SBIR award for “NEOSAFE” – A Novel Material for Manufacturing Pediatric Medical Devices.
16. GTC Bio (2015-Present) – Consultant Stem Cell Biology Meeting Development.
17. Biostage, Inc. (2016 – Present) – Consultant on development of tissue engineered esophageal replacements. Scientific Advisory Board.
18. Jefferies, LLC. (2018) – Consultant re: Biological therapies to treat TBI.
19. BlueRock, Inc. (2018) – Consultant re: iPSC derived microglia to treat TBI.

**Biotechnology Small Business:**

1. EMIT, Inc., Scientific Advisory Board: (Evolution/Successor to ThermaLabs, Inc.); Shareholder; Royalty Interest. (2009-present) EMIT, Inc. is a biotechnology start-up based on IP developed in our laboratory (see patents above). The company was founded in 2009 and initially capitalized with \$4 million from a regional biotechnology venture fund CitareTEX. EMIT has developed the existing technology through the FDA 510K process to successfully manufacture/sales & royalty generation. Series B financing via Horizon Fund.
2. Coagulex, Inc. – Founder/shareholder & royalty interest. Coagulex is a venture funded biotech start-up founded in 2013. Coagulex uses IP surrounding the use of MEMS based coagulation testing. Coagulex is the corporate entity of Coagulation Investment Partners, LLP.
3. Cellvation, Inc. – Founder/Scientific Advisory Board Chairman; Shareholder. Cellvation is a biotechnology company that is a wholly owned subsidiary of Fortress Biotechnology (FBIO: NASDAQ). Cellvation develops cell based therapies for TBI and has a license for cell based therapies in TBI developed at UT Health.
4. Alation, Inc. – Founder; Secretary (2006-present) Alation is a biotechnology shell corporation available for use as an SBIR/STRR entity for newly developed biotechnologies.
5. Immatics, Inc. – (2015-2019) Collaborative cGMP production of T-cell products for multiple clinical trials at MDACC, as component of 80 million USD program project.

6. Verde Environmental Inc. – Royalty Interest VEI is a small biotechnology firm in Houston, TX that uses IP protected processes of re-animation of sporulated bacteria with surfactant fire-fighting foams to mitigate the environmental impact of hydrocarbon spills/fires using bacteria mediated bio-remediation. We maintain a royalty interest and non-controlling equity interest in the company.
7. Medical Innovation Labs (formerly Texas Medical Accelerator) – The TMDA is a consortium of innovations from UCSF, Stanford, CHOP, and UT-Houston focusing on partnering with venture capital and industry to develop novel pediatric surgical/critical care based medical devices. The accelerator is based in Austin, Texas, and linked to UT-Austin and private industry.
8. United States Department of Justice – Expert for prosecution regarding Stem Cell therapy fraud.

**Investigational New Drugs (FDA – CBER/OCTGT):**

1. BB-IND-12620 (2005): Safety of autologous bone marrow progenitor cell treatment for traumatic brain injury. (Active)
2. BB-IND-13127 (2006): Autologous stem cell treatment for hypoxic-ischemic encephalopathy in the newborn. (Closed)
3. BB-IND-14214 (2009): Autologous hUCB for the treatment of traumatic brain injury. (Active)
4. BB-IND-14281 (2010): Safety of autologous stem cell treatment for spinal cord injury in children. (Active) (Co-Investigator) (Baumgartner-PI)
5. BB-IND-76772 (2005) - MD Anderson Protocol 2005-0917: A phase I study of continuous hyperthermic peritoneal perfusion with escalating doses of cisplatin for children with peritoneal carcinomatosis or advanced peritoneal and retroperitoneal disease. (Active): Collaborator.
6. BB-IND-13775 (2009): Safety of autologous bone marrow treatment for ischemic stroke. (Active) (Co-Investigator) (Savitz-PI)
7. BB-IND-15246 (2012): Autologous cell therapies for cerebral palsy-chronic (ACT for CP). (Active)
8. BB-IND-17215 (2016): Autologous Wharton’s Jelly for surgical repair of cleft palate. (Clinical Hold)
9. BB-IND-17484 (2017): Autologous umbilical cord stem cells for individual patient expanded access. (Active)
10. BB-IND-18235 (2018): Autologous umbilical cord mononuclear cells (for CDH associated HIE). (Active)

**Publications:**

**Google Scholar Profile (11/6/18): Charles S. Cox**

Citations: 7085  
h index: 44  
i 10 index: 125

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8. Venkataraman SS, Cox CS, Shah M. Judicious angiographic imaging and conservative management should be the standard for pediatric patients at risk for blunt cerebrovascular injury. J Trauma/Acute Care Surgery 85:651-652, 2018.

### **Other Professional Communications:**

#### **Presentations (Invited)**

1. "Hemostasis, Coagulation and Blood-Surface Interactions during ECMO", University of Texas Medical Branch at Galveston, ECMO Training Course, Galveston, Texas, 10/19/90.
2. "Respiratory Assist Devices: Future Trends", University of Texas Medical Branch at Galveston, Galveston, Texas, 12/12/90.
3. "Extracorporeal membrane oxygenation (ECMO) and Intravascular Oxygenation for Acute Respiratory Failure in an Ovine Model", University of Texas Health Science Center at Houston Surgical Research Symposium, Houston, Texas, 6/1/91.
4. "Acute Respiratory Failure", Shriner's Burns Institute Basic Science Lecture Series, Galveston, Texas, 10/25/91.
5. "ECMO for neonatal and pediatric respiratory failure", Houston Area Respiratory Care Conference, Houston, Texas, 8/5/92.
6. "Pathophysiology of smoke inhalation injury", University of Texas Health Science Center at Houston, Houston, Texas, 10/25/92.
7. "New treatments of smoke inhalation injury", University of Texas Health Science Center at Houston, Houston, Texas, 6/24/94.
8. "Pediatric Shock Update", University of Texas Health Science Center at Houston, 7/7/97.
9. "Pediatric Trauma: ABC's-Abuse, Burns and Closed Head injury", Hermann Life Flight Roseann Waindell Memorial Emergency Care Symposium. 8/13/96.
10. "Oxygen Kinetics of ECMO", University of Texas Medical School-Houston-ECMO and Neonatal Transport Course, Houston, Texas, 7/23/97.
11. "Venoarterial and Venovenous ECMO", University of Texas Medical School-Houston-ECMO and Neonatal Transport Course, Houston, Texas, 7/24/97.
12. "ECMO Cannulation", University of Texas Medical School-Houston-ECMO and Neonatal Transport Course, 10/25/00.

### **Presentations (Scientific; not represented by abstracts)**

1. "Malignant fibrous histiocytoma arising from the superficial femoral artery", San Antonio Vascular Surgery Society, San Antonio, Texas, 9/29/89. (Oral)
2. "Subclavian Artery Trauma", American College of Surgeons Committee on Trauma Meeting, Dallas, Texas, 11/2/90. (Oral)
3. "Consumptive Coagulopathy during ECMO?", Extracorporeal Life Support Organization, Ann Arbor, Michigan, 11/30/90. (Poster)
4. "Use of an Intravascular Oxygenator in an *Ovine* Smoke Inhalation Injury Model", Society of University Surgeons, Galveston, Texas, 2/7/91. (Resident's Program) (Oral)
5. "Mechanical and Patient Complications of Extracorporeal membrane oxygenation for respiratory failure", Ninth Biomedical Engineering Research Conference, Houston, Texas, 2/12/91. (Oral)
6. "Airtrapping capability of the SCIMED Ecmotherm heat exchanger", Extracorporeal Life Support Organization Meeting, Ann Arbor, Michigan, 9/12/91. (Poster/Device Demonstration)
7. "Heparin improves oxygenation and minimizes barotrauma after smoke inhalation in an *ovine* model", American College of Surgeons, So. TX. Ch. Meeting, San Antonio, Texas, 2/17/92. (Oral)
8. "Ileal mucosal hypoperfusion during cardiopulmonary bypass", Society of University Surgeons, Cincinnati, Ohio, 2/15/92. (Resident's Program) (Oral)
9. "Intratracheal pulmonary ventilation - a new technique of mechanical ventilation", Biomedical Engineering Research Meeting, Houston, Texas, 3/19/92. (Oral)
10. "Reduction of ventilator support with IVOX", Biomedical Engineering Research Meeting, Houston, Texas, 3/19/92. (Oral)
11. "Effects of heparin on smoke-induced pulmonary injury: A review of potential mechanisms of action", University of California, San Diego; Effects of heparin in burns Meeting, San Diego, California, 2/25/94. (Oral)
12. "Heparin and experimental sepsis", University of California, San Diego; Effects of heparin in burns Meeting, San Diego, California, 2/25/94. (Oral)
13. "Surgical management of ambiguous genitalia: An update", University of Oklahoma, Pediatric Surgery Resident's Conference, Oklahoma City, Oklahoma, 11/15/95. (Oral)

14. “Blunt versus penetrating subclavian artery injury: Presentation, injury pattern, and outcome”, American Association for Surgery of Trauma, Waikoloa, Hawaii, 9/25/97. (Poster)
15. “Imaging and decision making in pediatric blunt abdominal trauma”, University of Texas-Houston Medical School Department of Surgery Grand Rounds, Houston, Texas, 11/24/97. (Oral)
16. “Fundamentals of Pediatric Trauma Resuscitation”, University of Texas-Houston Medical School Department of Surgery Grand Rounds, Houston, Texas, 1/20/97. (Oral)
17. “PMN mediated microvascular injury with extracorporeal circulation”, Rice University Bioengineering Seminar, Houston, Texas 9/15/99. (Oral).
18. “Evaluation of Pediatric Blunt Abdominal Trauma”, East Texas Medical Conference Continuing Medical Education/Grand Rounds, Tyler, Texas, 5/19/00. (Oral)
19. “ECMO for Trauma-Related Cardiopulmonary Failure”, East Texas Medical Conference Continuing Medical Education/Grand Rounds, Tyler, Texas, 5/19/00. (Oral)
20. “Evaluation of Pediatric Blunt Abdominal Trauma”, Trauma Regional Advisory Council V Symposium, South Padre Island, Texas, 6/15/00. (Oral)
21. “Update on Smoke Inhalation Injury”, Southeast Texas Trauma Regional Advisory Council, Houston, Texas, 7/10/00. (Oral)
22. “Decision making in Pediatric Blunt Abdominal Trauma”, Southeast Memorial Hospital Grand Rounds, Houston, Texas, 9/16/00. (Oral)
23. “Management of Pediatric Blunt Abdominal Trauma”, Valley Baptist Medical Center, Harlingen, Texas, 12/7/00. (Oral)
24. “Unconventional adjuncts to mechanical ventilation in ARDS”, American College of Surgeons, New Orleans, Louisiana 10/11/01.  
[www.facs.org/clinical2001/cox.pdf](http://www.facs.org/clinical2001/cox.pdf) (Oral)
25. “Intestinal edema – effect on function”, Red Duke Professorship Day, University of Texas – Houston, Houston, Texas, 1/15/02. (Oral)
26. “Pediatric Trauma Resuscitation”, East Texas Medical Center Trauma Symposium, Tyler Texas, 08/23/02. (Oral).
27. “Trauma Surgery in Afghanistan”, Valley Baptist Medical Center, Harlingen, Texas, 3/25/03. (Oral)

28. "Terror in Afghanistan", University of Texas-Houston Grand Rounds, Houston, Texas, 4/01/03. (Oral)
29. "A Semester Abroad", University of Chicago Grand Rounds, Chicago, Illinois, 5/22/03. (Oral)
30. "Pediatric Trauma: Relevance for the Military Surgeon", Gary Wratten Memorial Surgical Conference, San Antonio, Texas, 5/20/03. (Oral)
31. "Fluid Balance and ECMO", Extracorporeal Life Support Organization, Chicago, Illinois, 9/13/03. (Oral-Plenary)
32. "Military Surgery as a Reservist", Surgical Student Association, Houston, Texas, 10/4/03.
33. "Pediatric Surgery in a Combat Zone", Department of Pediatrics Grand Rounds, Houston, Texas, 12/7/03. (Oral)
34. "AMEDD Recruiting Strategies", AMEDD Advertising and Marketing Workshop, Louisville, Kentucky, 4/12/04. (Oral)
35. "Military Medical Careers", Joint Admission Medical Program, University of Texas-Houston Medical School, Houston, Texas, 6/25/04. (Oral)
36. "Pediatric Trauma Management: FST or Tertiary Trauma Center", BAMC 10<sup>th</sup> Annual Trauma Symposium, San Antonio, Texas, 8/10/04. (Oral)
37. "Mechanisms of Myocardial Dysfunction after Gut Ischemia/Reperfusion." Red Duke Professorship Day, University of Texas-Houston, Houston, Texas, 1/22/05. (Oral)
38. "Immune Function During ECMO", Arnold G. Coran, M.D. Symposium, University of Michigan, Ann Arbor, Michigan, 6/5/05. (Oral)
39. "Thoracic Trauma", Cook Children's Hospital Trauma Symposium, Fort Worth, Texas, 6/10/05. (Oral)
40. "Dynamic Fluid Flow Modeling of an Arteriovenous Resuscitation Device", UTCBME Symposium, 4/29/05. (Poster)
41. "Bioimpedance Analysis Quantifies Level of Edema and Capacitance of Rat Small Intestine", UTCBME Symposium, 7/29/05. (Poster)
42. State of the Art Presentations: Meconium Aspiration - "ECMO for MAS – Do we use the right criteria?" Extracorporeal Life Support Organization Meeting, 9/17/05. (Oral-Panel)

43. “Development of Stem-Cell Therapy for Brain Injury”, University of Texas-Houston Medical School, Houston, Texas, 10/28/05. (Oral)
44. “Bone-marrow Progenitor Cells and Traumatic Brain Injury”, South Texas Chapter of the American College of Surgeons, Houston, Texas, 2/24/06. (Oral)
45. “Cellular Therapy for Traumatic Brain Injury”, Pediatric Brain Injury Research Symposium, University of Texas Southwestern Medical School, Dallas, Texas, 3/31/06. (Oral)
46. “Human Umbilical Cord Blood as Cellular Progenitor Therapy for Brain Injury”, Cord Blood Stem Cell Advisory Meeting, Tucson, Arizona, 4/6/06. (Oral)
47. “Trauma and Child Abuse”, University of Texas Child Abuse Symposium, Houston, Texas, 5/12/06.
48. “Novel Cellular Therapies for Neurologic Diseases”, University of Iowa Department of Surgery Grand Rounds, Iowa City, Iowa, 7/18/06.
49. “Edema-induced Intestinal Dysfunction”, Columbus Children’s Hospital/Ohio State University, Columbus, Ohio, 2/20/07.
50. “Mechanisms of edema-induced organ dysfunction”, Michael E. DeBakey Institute, Texas A&M University, College Station, Texas, 7/26/07.
51. “Modern approach to pediatric TBI”, Children’s Hospital of Los Angeles Pediatric Disaster Summit. Los Angeles, California, 9/11/08.
52. “Progenitor cell therapy for TBI”, MD Anderson Cancer Center Grand Rounds, Houston, Texas, 11/24/08.
53. “Pediatric Traumatic Brain Injury Clinical Trials using Progenitor Cells” Georgia Stem Cell Institute, Augusta, Georgia, 2/10/2009.
54. “Advances in umbilical cord blood therapies for traumatic brain injury.” University of Texas Medical School at Houston, Obstetrics and Gynecology Grand Rounds, Houston, Texas, 2/17/09.
55. “Human umbilical cord blood treatment for traumatic brain injury.” CBR, Inc., Invited lecture: Molecular Medicine Tri-Conference, San Francisco, California, 2/25/09.
56. “Cerebral Resuscitation for Traumatic Brain Injury” Kiwanis Pediatric Trauma Institute. San Juan, Puerto Rico, 5/27/09.
57. “Stem Cells in Trauma”, Shock Society, San Antonio, Texas, 6/6/09.
58. “Cellular Therapeutics for TBI”, American Pediatric Surgical Association, San Juan, Puerto Rico, 5/23/09.

59. "cGMP processes/clean rooms: Prerequisites to cell tissue and biologics translational therapeutics". Regenerative Medicine Grand Rounds, Houston, TX, 8/3/09.
60. "Evolving concepts in cell therapy for TBI", UC-Davis, Sacramento, CA, 8/7/09.
61. "Cerebral Resuscitation". Kentucky Statewide Trauma and Emergency Medicine Symposium, Louisville, KY, 10/29/09.
62. "Progenitor Cell Therapeutics for TBI", University of Louisville Grand Rounds/Visiting Professor, Louisville, KY, 10/30/09.
63. "Perspectives on Stem Cell Therapies for TBI", Sandia National Laboratories/DARPA. Albuquerque, NM, 11/12/09.
64. "Cord Blood to Treat Traumatic Brain Injury". CBR, Inc., Invited Lecture; Fort Worth, TX, Obstetrics and Gynecology Society Meeting, 12/7/09.
65. "Cellular therapy for Neuroprotection during ECLS: Potential approaches." 26<sup>th</sup> Annual CNMC Symposium: ECMO and Advanced Therapies for Respiratory Failure. Keystone, Colorado, 2/21/10.
66. "Cellular Therapies for TBI in Children" Eighth World Congress on Trauma, Shock, Inflammation and Sepsis- TSIS 2010. Munich, Germany, 3/10/2010.
67. "Endogenous Bioreactors" Eighth World Congress on Trauma, Shock, Inflammation and Sepsis- TSIS 2010. Munich, Germany, 3/10/2010.
68. "Progenitor Cell Biodistribution after Intravenous Delivery" STEPS-2 Conference, Houston, Texas, 3/26/2010.
69. Emerging Indications for hUCB Therapies: Bay Area OB-GYN, Clear Lake, Texas, 4/28/2010.
70. "Progenitor Cell Therapies for TBI: Emerging Mechanisms of Action. The University of Texas-Houston Medical School; Department of Surgery Grand Rounds, Houston, Texas, 4/29/2010.
71. "Mechanisms of action of Multistem for TBI." Athersys Investor Day Conference. New York, New York, 5/14/2010.
72. "Update on cellular therapies." MEDNAX Research conference. Washington, DC, 6/29/2010.
73. "Implication of Progenitor cell: Spleen interactions for TBI." Neurosurgery Grand Rounds, University of Texas Medical School at Houston, Houston, Texas, 9/2/2010.



74. "Management of the Open Abdomen Inflammatory Component." American College of Surgeons/KCI, Inc., Open Abdomen Symposium, Washington, D.C., 10/4/2010.
75. "Developing & maintaining a DSMB." GCP lecture series: CCTS, Houston, Texas, 12/7/2010.
76. "Cerebral Resuscitation." 2<sup>nd</sup> Annual Pediatric Pre-Hospital Trauma Conference. Houston, Texas, 5/16/2011.
77. "Barriers in Pediatric Cell Therapy." NIH/NHLBI Workshop in Pediatric Cell Therapy. Bethesda, MD, 9/14/2011.
78. "Umbilical Cord Blood for Traumatic Brain Injury." US Naval Hospital-Bethesda Department of Obstetrics and Gynecology Grand Rounds. Bethesda, MD, 9/15/2011.
79. Afghanistan Trauma Surgery 2002. Association of Surgical Technology Meeting. Houston, TX, 10/16/2011.
80. "Cell Therapy for Traumatic Brain Injury: Potential Mechanisms and Novel Approaches." Monash Institute for Medical Research: The Ritchie Center. Melbourne, Australia, 12/1/2011.
81. "Autologous bone marrow mononuclear cells for traumatic brain injury: Mechanisms of action." University of Texas – Houston Department of Neurosurgery Grand Rounds, Houston, TX, 04/15/2012.
82. "Update: Cell Therapies for TBI – Emerging Mechanisms." University of Texas – Houston Department of Surgery Grand Rounds, Houston, TX, 07/12/2012.
83. "Evolution of Concepts in Autologous Cell Therapy for TBI." Surgical Biology III, Chicago, IL, 09/29/2012.
84. "Stem Cell Therapies for Neurological Injury: Fast, Cheap or Good – Pick Two." Mission Connect Symposium, Houston, TX, 10/23/2012.
85. "Cellular Therapies for Neurological Injuries: Emerging Mechanisms." Cellular Therapies in Trauma and Critical Care, San Francisco, CA, 12/3/2012.
86. "Regenerative Medicine: Update on Amniotic Fluid-derived MSC Program" UT Health Fetal Conference, Houston, TX, 1/22/2013.
87. "Adult Stem Cells and Traumatic Brain Injury." The Second International Vatican Adult Stem Cell Conference: Regenerative Medicine – A Fundamental Shift in Science and Culture. Vatican, Rome, Italy, 4/12/2013.

88. "Spleen – Stem Cells – Neurological Injury." Gulf Coast Consortium Cluster on Regenerative Medicine. Houston, Texas (Rice University), 6/20/13.
89. "Clinical Trials: Tribulations using Cell Therapy for Neurological Injury." MSC 2013. Cleveland, Ohio, 8/21/13.
90. "Advanced Therapies in TBI." Mischer Neurosciences Institute NeuroUpdate 2014. Houston, Texas, 3/10/14.
91. "Evolution of cell therapies for traumatic brain injury." Baylor – University of Texas – Houston. Physical Medicine & Rehabilitation Grand Rounds. Houston, Texas, 4/24/14.
92. "Next phase clinical trials in Neurological Injury – Cellular Therapies; Prerequisites – Opportunities." GTC Biotechnology Conference. Boston, Massachusetts, 4/23/14.
93. "Cell Therapy & Clinical Trials in Neurological Injury: Targets, Results and Rationale." World Stem Cell Summit. San Antonio, Texas, 12/3/14.
94. "Cellular Therapies for TBI: Update & Future State." DOD Meeting on Cellular Therapies in Trauma/Critical Care. Ft. Detrick, Maryland, 2/5/15.
95. "Advanced Cellular Therapies for TBI." Western Trauma Association Founders Lecture. Telluride, Colorado, 3/5/15.
96. "Pediatric Trauma Resuscitation Strategies: Opportunity to Impact Multiple Organ Systems (Gut & Brain)" MODS Workshop. Washington, DC, 3/26/15.
97. "Cellular Therapies for Neurological Injuries: Update on ACT for CP" International Cord Blood Symposium. San Francisco, CA, 6/13/15.
98. "Progenitor Cell Therapy for TBI – Session" National Neurotrauma Symposium. Santa Fe, NM, 6/30/15.
99. "What did I sign up for" University of Texas Medical School. Houston, TX, 11/12/15.
100. "How will we know it works? Potency assays for cell therapies" Perinatal Stem Cell Society – The Aspen Institute. Aspen, CO, 3/6/16.
101. "Autologous cell therapy reduces therapeutic intensity for TBI" Neuro ICU Symposium – Mischer Neurosciences Institute. Houston, TX, 3/24/16.
102. "Autologous cellular therapies for TBI" GTC Bio Conference. Boston, MA, 4/25/16.
103. "Translating and commercializing cell therapy" Texas FreshAIR Grand Challenges in Neuroscience Conference. Austin, TX, 10/5/16.
104. "Military Applications of Cell Based Therapy" Gulf Coast Consortium. Houston,

TX, 4/22/17.

105. “Plato’s Allegory of the Cave” – Can imaging inform us about clinical trials in TBI. STEPS 4 Conference. Washington, DC, 5/4/17.
106. “Clinical trials in TBI” – CTTACC Conference. San Francisco, CA, 5/16/17.
107. “Wharton’s jelly to augment alveolar cleft palate repair” – Regenerative Medicine Congress. Newark, NJ, 5/20/17.
108. “Clinical trials in cellular therapy for TBI” – Shock Society. Fort Lauderdale, FL, 6/5/17.
109. “Lessons learned from 1<sup>st</sup> 100 patients in cell therapy for neurological injury”. Cardiovascular Surgery Grand Rounds, UT Health. Houston, TX, 7/14/17.
110. “Cellular Therapy for TBI: What about cord blood?” 16<sup>th</sup> International Cord Blood Symposium. San Diego, CA, 6/16/18.
111. “Alignment of patient care, research and education in the health care system. Association of Academic Health Centers. Chicago, IL, 10/12/18.
112. “Hypotheses, Data, Environment.” Houston Baptist University Under the Microscope Lecture Series. Houston, TX, 11/3/18.